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Prostheses for Pachyderm Landmine Survivors

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Many times the only landmine survivors considered candidates for prostheses are humans; however, pachyderm victims also need assistance. Along the Thai-Burmese border, a heavily mined area, elephants that are used for logging, as well as wild elephants, often fall victim to landmines. Lacking other options and unable to care for the animals in this condition, their caretakers frequently opt to end the animals' lives.

Per the 2004 *Landmine Monitor Report*,[1] in Burma and Thailand it is not uncommon for both domestic and wild animals—including buffalo, dogs, wild pigs, and tigers—to fall victim to landmines. Reports indicate that landmines along the Bangladesh–Burma border have killed at least 26 elephants, and up to 90 have been killed or injured along the Thailand-Burma (Myanmar) border.

The staff of the Friends of the Asian Elephant Hospital in Thailand use the CIR Casting System to create a prosthesis for Mosha.
ALL PHOTOS COURTESY OF AKIYO KUNYOSHI

Though the staff of the Friends of the Asian Elephant Hospital in Thailand[2] has treated nine survivors, many more die each year. Thanks to the CIR Casting System developed by Dr. Yeongchi Wu's team at the Center for International Rehabilitation,[3, 4] however one young elephant is now able to walk again and more may be able to do so soon.

Much like 47-year-old Motala,[5] the Thai elephant that made headlines when he was fitted with a prosthesis after losing his leg in 1999, Mosha, a 31-month-old Thai elephant, was given a new leg and an opportunity to move past the trauma of her injury. Mosha's right forelimb was severed in a landmine blast two years ago along the Thai-Burmese border when she was only sevenmonths old.[5] Unlike Motala, who was fitted temporarily with a sawdust-filled canvas bag before being fitted with a permanent prosthesis,[6] Mosha was fitted using the CIR Casting System, providing her with a properly fitted prosthetic in a very short period of time. Mosha was fitted with her prosthesis at the Elephant Hospital of the Thai Elephant Conservation Center.[7]

Mosha enjoys a walk with her new prosthesis and Dr. Therdchai Jivacate of Thailand's Prostheses Foundation.

The CIR system replaces traditional plaster-of-Paris bandages with a specially made fabric casting bag filled with polystyrene beads. By placing the casting bag around the residual limb, a negative mold is formed once vacuum suction is applied. The mold can then be removed and used to create a final prosthesis quickly and easily. The technique was developed with funding from the U.S. Department of Educations's National Institute on Disability Rehabilitation Research for the CIR's Rehabilitation Engineering Research Center on improved technology access for landmine survivors. The fabrication method was taught during World Health Organization-sponsored technology-transfer workshop at the Srindhorn National Rehabilitation Center in Bangkok, Thailand, in March 2007. After attending the workshop, Dr. Therdchai Jivacate, the Secretary-General of the Thailand's Prostheses Foundation and recipient of the 2008 Ramon Magsaysay Award,[8] applied a modified version of the system to Mosha.[9]

The CIR Casting System has been used for several years to create high-quality, low-cost prostheses for human landmine survivors and other people with below-knee amputation. Now, Dr. Wu hopes that using the casting system to craft prostheses may be a viable alternative to euthanizing animals like elephants injured by landmines. He also thinks the system might work for racehorses if their thin, spindly legs break.

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